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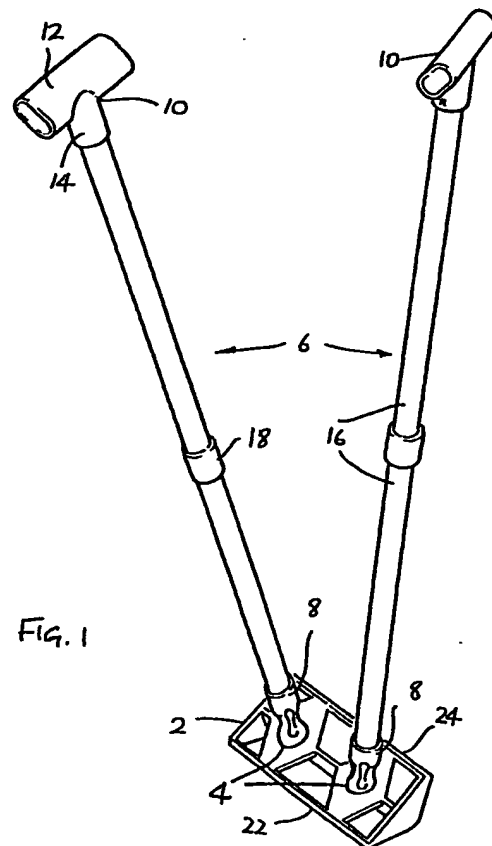
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GB A 2114456 WO 8002849
GB A 2004189 US 3587319
GB 0832387

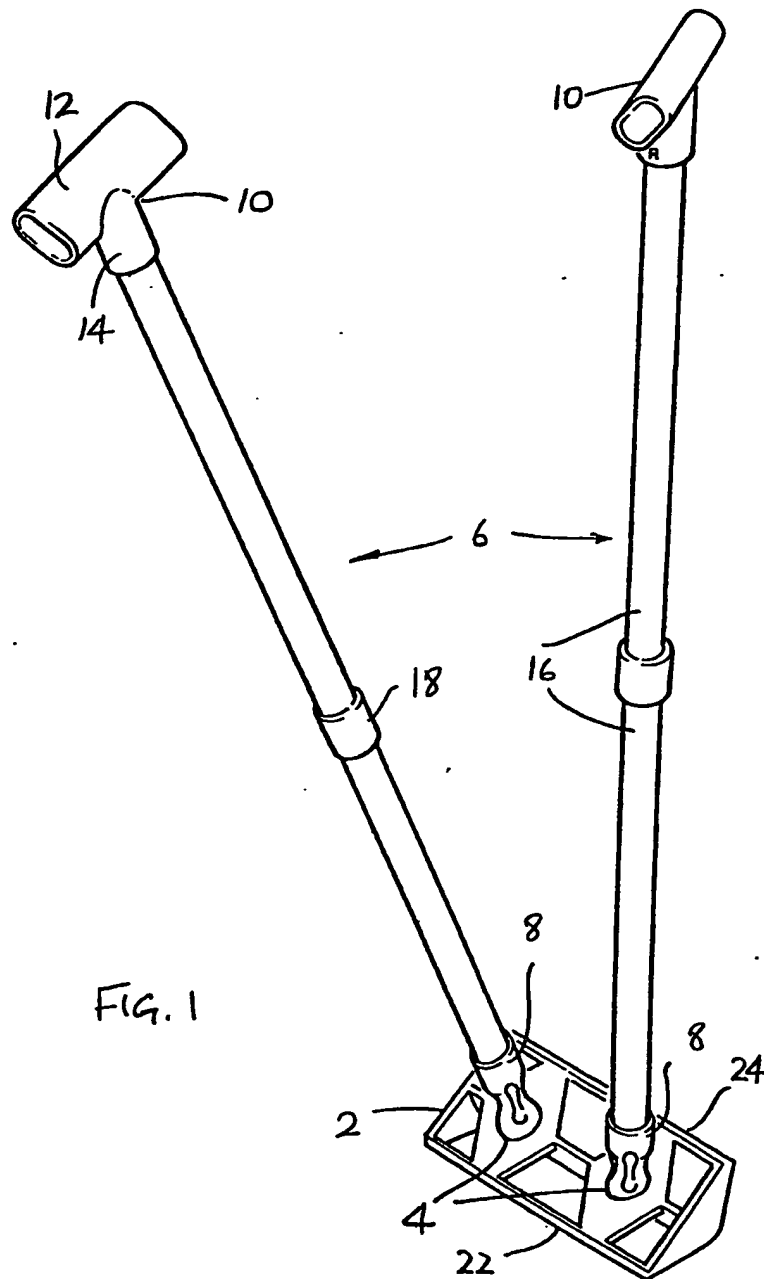
(58) Field of search
A4P
A6D
A6M
B4K

(54) Exercise apparatus

(57) Exercise apparatus comprises a pair of rods 6 mounted on a base 2 by ball and socket joints 4, 8 about which the rods are freely and independently pivotable. At the other end the rods are each provided with a handle 10 having a flattened bar 12 set at an oblique angle to the rod 6 and a gripping face in a plane inclined obliquely relative to the rod 6. In another embodiment a single rod has a double handle having a cross-piece which may rotate about its own axis.



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FIG. 2

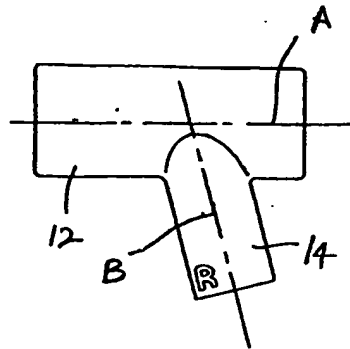


FIG. 3

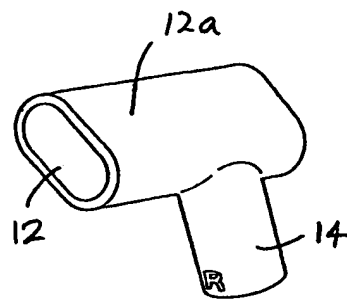
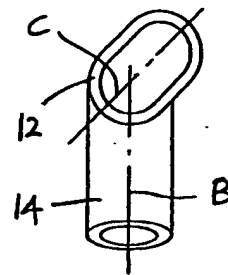
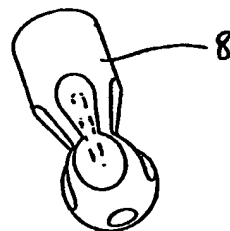


FIG. 4

FIG. 5



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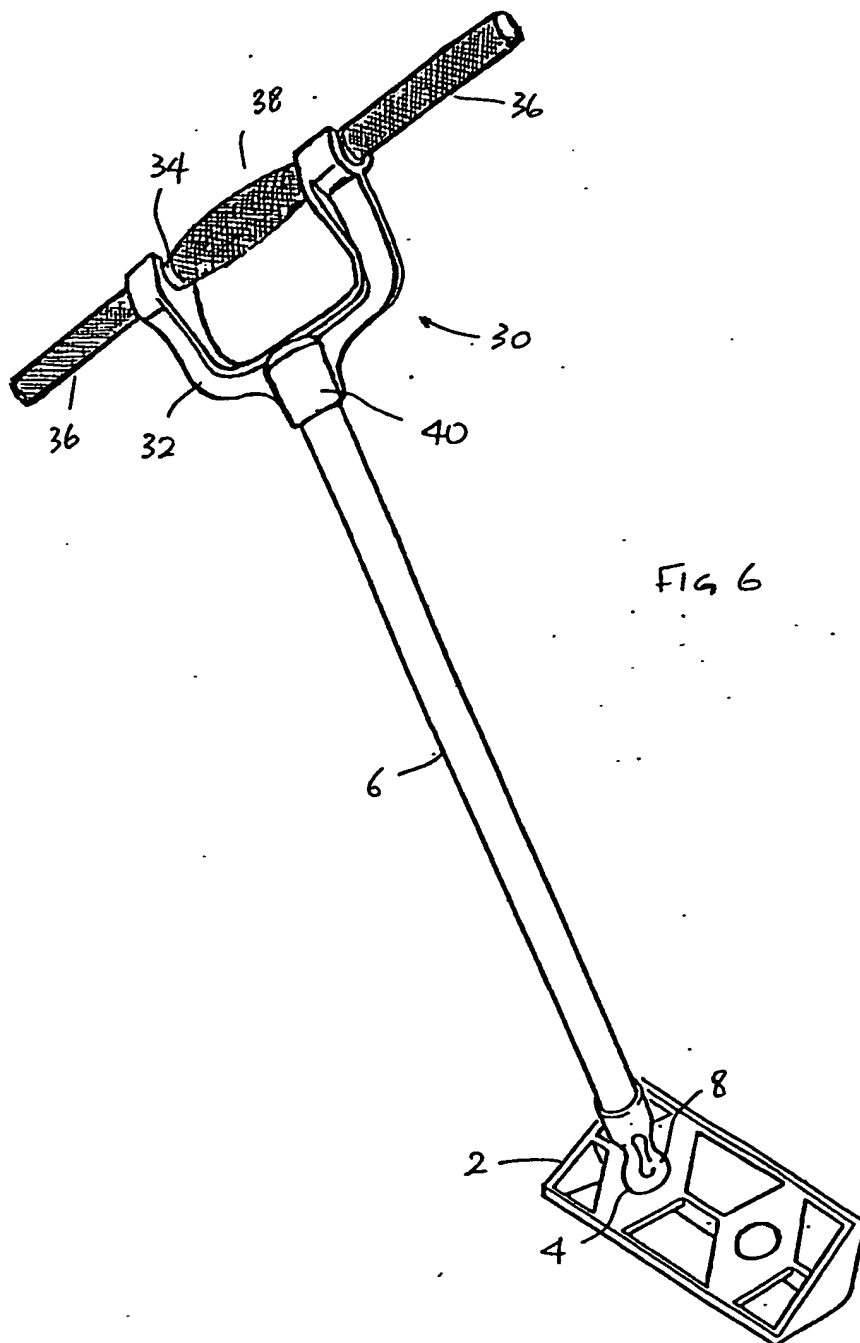
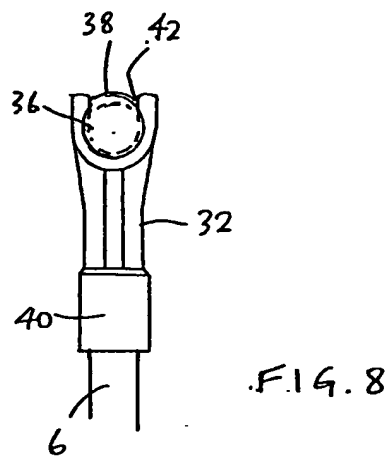
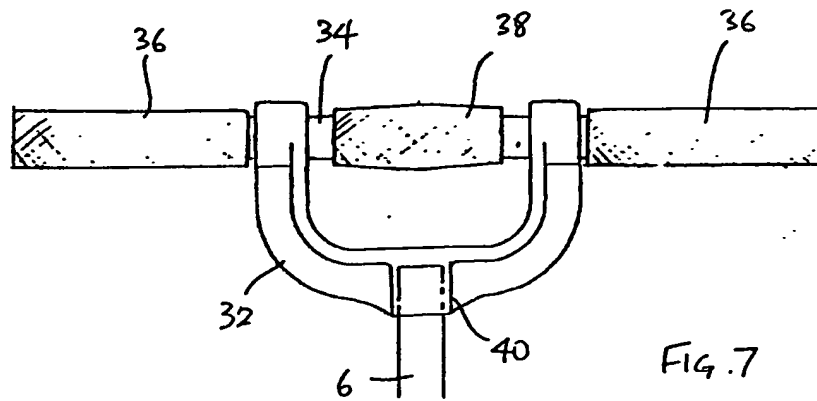


Fig. 6

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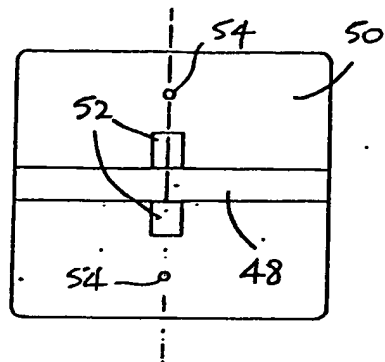


FIG. 9

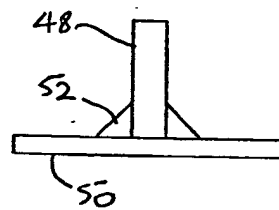


FIG. 10

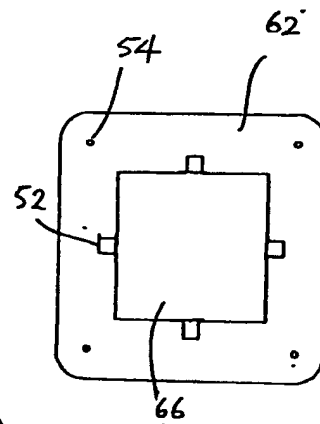


FIG. 12

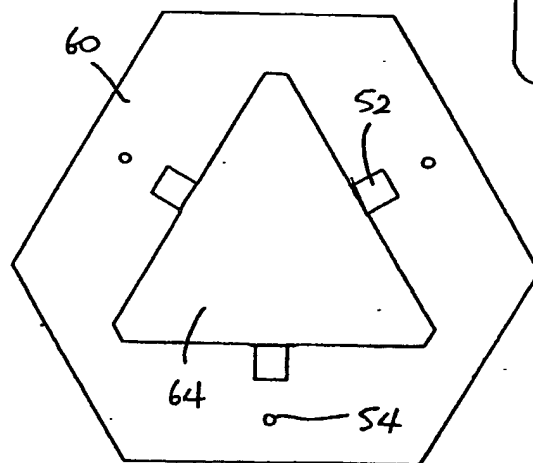


FIG. 11

SPECIFICATION

Exercise Apparatus

This invention relates to apparatus for physical exercise.

5 According to the invention, there is provided an exercise apparatus comprising at least one rigid elongate member provided with a mounting at one end that permits pivot movements about axes transverse to the longitudinal axis of the member, at
10 its other end said member being provided with an elongated cross-piece comprising at least one hand grip, the major dimension of the cross-piece extending transversely to the longitudinal axis of the member.

15 One form of exercise apparatus according to the invention comprises a pair of rigid elongate members having respective mountings at one end, said mountings being spaced from each other and permitting independent pivot movements of each member about axes transverse to its longitudinal axis, at their other ends the members having hand grips each of which comprises an elongated cross-piece the major dimension of which extends transversely to the longitudinal axis of its associated
25 elongate member.

The said form of apparatus the major dimension of the cross-piece preferably lies at an oblique angle the longitudinal axis of the member. Thus, said major dimension may appropriately be at an angle of some 70°–80° to the member longitudinal axis, preferably substantially 75°. The hand grip cross-piece may have a generally bar-like form with a flattened cross-section transverse to its major dimensions to provide a gripping face fitting the palm of the hand. Said surface may be appropriately
35 at an angle of some 40°–50° to the longitudinal axis of the member, preferably substantially 45°.

In another form of exercise apparatus according to the invention, a single member is provided with a
40 handgrip the cross-piece of which extends to both sides of the member, with gripping surfaces on opposite sides of the member, and the cross-piece is rotatable about an axis transverse to the longitudinal axis of the member. Preferably, the cross-piece also has a central handgrip portion in the region of the longitudinal axis of the member.

The mountings are conveniently provided on a base that has bearing faces arranged to be set in the angle between a wall and a floor, or similar fixed
50 support surfaces, so that the apparatus is firmly supported in use without the need to be secured in place or for there to be any specially adapted anchorage to receive it. The mountings themselves can be ball and socket joints that provide the required freedom of movement, and that are capable of easy separation when the apparatus is to be dismantled.

The invention also provides an underbase on which a plurality of said mountings can be placed
60 for respective exercise apparatus to be employed by different users simultaneously, the underbase being arranged to locate said mountings so that horizontal force components imposed as the users exercise may be substantially cancelled out.

65 Apparatus according to the invention is illustrated by way of example in the accompanying drawings in which:

Fig. 1 is an oblique view of the apparatus in one form,

70 Figs. 2–4 are front, end and oblique views of one of the hand grips of the apparatus shown in Fig. 1,

Fig. 5 is an oblique view of a ball member of one of the ball and socket joints of the apparatus,

Fig. 6 is an oblique view of another form of

75 apparatus according to the invention,

Figs. 7 and 8 are front and side views of the hand grip of the apparatus in Fig. 6,

Figs. 9 and 10 are a plan view and a side view respectively of an underbase for simultaneous

80 exercise by two users, and

Figs. 11 and 12 illustrate further underbases.

The apparatus shown in Fig. 1 comprises a rigid base bracket 2 in which sockets 4 are located side by side with a spacing of some 15 cm or more. Two
85 rigid rods 6 each approximately 1.5 m long have ball elements 8 at their lower ends fitting in the sockets so that each rod can pivot freely about all axes passing through its pivot joint. At the upper end of the rods are transversely extending hand grips 10 for the user to grasp, so as to be supported through the rods while exercising with the apparatus.

The hand grips each comprise a cross-bar 12 in the form of a flattened cross-section tube, and an integral socket 14 receiving the end of the rod joining the cross-bar towards one end of the bar.
95 The tubular axis A of the cross-bar 12 is oblique to the axis B of the socket, and therefore to the axis of the rod 6 also. The major axis C of the cross-section of the tubular bar is also oblique to the socket axis B. More specifically, the axes of the tubular cross-bar and socket are at an angle of 70°–80°, preferably 75°, and the bar cross-section major axis is at an angle of 40°–50°, preferably 45°, to the socket axis. The offset of the socket towards one end of the cross-bar
100 allows the user to place the palm of the hand on a flattened face 12a the hand grip to one side of the socket so that there is a clear gripping surface for the user's hand.

Although a smooth-faced, constant cross-section grip is shown, it can be modified, e.g. with finger recesses, to mould more closely to the user's hand.

The rods are each made of two shorter rigid tubes 16 with a detachable connecting collar 18, so that the apparatus can be stored more compactly when not in use. The collars may be a push-fit or screw-threaded or some form of quick release attachment, such as a bayonet coupling, may be used. The hand grips and the joint ball elements are preferably permanently secured to their tubes.
115 Instead of the external collars shown, releasable internal connections can be employed. It is, of course, possible to have a larger number of shorter tubes or to provide further tubes to be similarly connected in series so that different exercises can be carried out using different lengths of rod.

125 The base bracket 2 can be a unitary die-casting. It has horizontal and vertical bottom and rear faces 22, 24 to allow it to be placed in the angle between wall and floor to transmit thereto the pressure on it while

the apparatus is in use and remain securely in place, even though not positively fixed.

With apparatus so positioned the user can hold the hand grips to be supported through the rods while performing exercise movements. The ball and socket joints allow complete freedom of pivoting movement about all axes, while the form of the hand grips allows the user to perform a wide variety of exercises for different sets of muscles without movement being inhibited by an inability to maintain a secure grip.

When not in use, the rods can be dismantled at their releasable connections and the ball joints may be of a form that allow the ball elements to be simply lifted out of their sockets. Preferably the ball elements are of a resilient plastics material and snap-fit into their sockets with a light force, so that they are held securely while remaining easily removable.

Figs. 6 to 8 illustrate a modified form of the apparatus described above in that it uses only one of the rods 6 and a different shape hand grip 30 is secured to the rod. The hand grip is of symmetrical form and comprises a stirrup 32 in which a circular cross-section tubular bar 34 is rotatably mounted. Three grip sleeves 36, 38 are fixed to the bar and have roughened surfaces that give a secure holding surface, the central sleeve 38 also being crowned. Conveniently, socket 40 of the stirrup connecting it to the rod 6 can be detached from the rod, and slots 42 in which the bar 34 is held yield sufficiently to allow the bar to be detached from the stirrup.

This modified form of the apparatus can be employed in an analogous way to the apparatus of Fig. 1, but for a different series of exercises, the user gripping either the two outer sleeves 36 with both hands or the central sleeve 38 with one hand. As before, the rod 6 is rotatable about all axes through the centre of its ball and socket joint, and in addition the bar 34 of the hand grip is rotatable about its own longitudinal axis, transverse to the rod, as already indicated. It will be understood that simpler forms of the hand grip could have only the two outer sleeves or only the central sleeve, although their function would be correspondingly limited.

Figs. 9 to 12 show alternative underbases that can be used with the apparatus as a fixed or free-standing support that does not require a vertical support surface. Specifically, these underbases are intended to allow two or more users to exercise simultaneously with the apparatus.

In the simplest example of Fig. 9, two bases 2 can be placed on opposite sides of the central ridge 48 of the underbase 50, so that the two users are directly opposite each other. A rib 52 on each side prevents lateral movement of each base. It will be understood that the forces imposed by the users on the underbase tends to cancel each other out so that it remains stationary. The friction between it and the floor will usually be sufficient to resist quite appreciable out of balance forces because there will be a substantial downward component of force increasing the frictional effect. To further increase this effect the bottom face of the underbase can be ridged or roughened. It is also possible to fix the

underbase positively, however, and screw holes 54 are provided for this purpose.

Figs. 10 and 11 show underbases 60, 62 that are employed in a similar fashion for three or four users respectively, the locations for the bases of each individual exerciser being provided around the underbase by a symmetrical plan plinth, 64, 66 respectively. It will be understood that provision can be made for larger teams of users and other configurations can be provided in which the forces generated will substantially cancel each other, e.g. the underbase having a single axis of symmetry instead of being completely symmetrical in plan.

In some circumstances, e.g. for use in gymnasia, the exerciser may be a permanent fixture. The easily dismantled form of construction described above may not be needed, and the base can be adapted to be fixed at any desired position on a floor or wall. If the base is fixed it is possible also to pull on the rods provided the ball joints are so constructed that they cannot be pulled apart. For this reason it may in some instances be preferred to employ such secure joints in an apparatus intended to be disassembled but that is provided with means for fixing its base in place.

CLAIMS

1. An exercise apparatus comprising at least one rigid elongate member provided with a mounting at one end that permits pivot movements about axes transverse to the longitudinal axis of the member, at its other end said member being provided with an elongated cross-piece comprising at least one hand grip, the major dimension of the cross-piece extending transversely to the longitudinal axis of the member.

2. Apparatus according to claim 1 having a pair of elongate members each with a said mounting at one end, the mountings being disposed a pre-determined distance apart, the members being pivotable in said mountings independently of each other.

3. Apparatus according to claim 2 wherein the major dimension of the cross-piece of each member lies at an oblique angle to the longitudinal axis of the member.

4. Apparatus according to claim 3 wherein said major dimension is at an angle of 70—80° to the member longitudinal axis, preferably substantially 75°.

5. Apparatus according to any one of claims 2 to 4 wherein each hand grip cross-piece has a generally bar-like form with a flattened cross-section transverse to its major dimensions to provide a gripping face fitting the palm of the hand.

6. Apparatus according to claim 5 wherein said surface is at an angle substantially 40—50° to the longitudinal axis of the member, preferably substantially 45°.

7. Apparatus according to claim 1 wherein said cross-piece extends to both sides of its elongate member and has hand grips on opposite ends.

8. Apparatus according to claim 7 wherein the cross-piece also has a central hand-grip portion in the region of the member longitudinal axis.

9. Apparatus according to claim 7 or claim 8 wherein said cross-piece hand grips are jointly rotatable about the longitudinal axis of the cross-piece, perpendicular to the longitudinal axis of the member.
10. Apparatus according to any one of the preceding claims wherein the or each member mounting is a ball and socket joint.
11. Apparatus according to claim 10 wherein the ball of the or each said ball and socket joint is releasably slidable into its socket.
12. Apparatus according to any one of claims 1 to 11 wherein the mounting or mountings are provided on a base that has bearing faces arranged to be set into the angle between fixed vertical and horizontal support surfaces.
13. Apparatus according to any one of claims 1 to 11 comprising means for disposing two mountings or pairs of mountings in opposed relation to permit simultaneous use of respective members or pairs of members by two subjects.
14. Apparatus according to any one of claims 1 to 11 having a base comprising a series of mountings or pairs of mountings grouped substantially symmetrically relative to a central longitudinal axis to permit simultaneous use by a corresponding number of subjects.
15. An exercise apparatus constructed and arranged for use and operation substantially as described herein with reference to Figs. 1 to 5 or Figs. 6 to 8 of the accompanying drawings.
16. In combination with apparatus according to claim 15, an underbase constructed and arranged for use and operation substantially as described herein with reference to Figs. 9 and 10 or Fig. 11 or Fig. 12 of the accompanying drawings.